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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,092	03/23/2004	Yasuyuki Nakamura	3274-040239	2540

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	PAPER NUMBER
1731	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,092	NAKAMURA ET AL.	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/18/2007, 2/2/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 1/8/2007 and 2/2/2007 have been entered.

Response to Arguments

Applicant's arguments and amendments, filed 1/8/2007 and 2/2/2007, have been fully considered but they are insufficient to overcome the prior art rejections.

Applicant argues on pp 6-7 that the claimed polyamidoamine is made using a two step reaction process, the first step lasting until the acid value of the mixture reaches about 10% of the theoretical acid value of the original mixture, and the second step comprising reacting the product of the first step until the remaining acid value is reduced about 75% further. Applicant further argues that none of the references suggests a two step process for making the polyamidoamine.

The Examiner construes the first step to mean that the reaction proceeds to about 90% completion and the second step to mean that about 75% of the remaining reactants are then reacted, thus bringing the total extent of reaction to about 97.5%, or a near complete reaction. While Applicant explains that the second step is intended to be a dehydration step performed at a reduced pressure, the reduced pressure condition

is not recited in the claims as amended. Furthermore, there is no recitation that the first step is not also performed at the same pressure condition. As claimed, there is no apparent difference between the temperature and pressure conditions of the first and second steps and the process is indistinguishable from two parts of one continuous reaction.

The reaction disclosed by Howland et al, which is conducted until water evolution ceases, or to near completion (p5, last par), appears to be the same as the claimed process. The reaction of Howland et al can be said to proceed to approximately 90% completion and then the products are reacted further at the same temperature until water evolution ceases (which is a dehydration). The reaction of Howland et al occurs at a temperature from about 300 °F to about 350 °F (149°C to 177°C), which is approximately the same as the temperature of 180°C recited in the instant Specification (p 21, Example 1.1). Howland et al discloses reacting the same polyamines (diethylenetriamine, triethylenetertamine and tetraethylenepentamine) used in the examples in the instant Disclosure (see Table 1, p 25) with the same acids (stearic, oleic) in the same ratios (3:1 and 4:1, as detailed in the rejections below) at the same temperature and to about the same extent of reaction. Howland et al specifies products that can have the tertiary amine to total amine ratios in the claimed range. No difference can therefore be seen between the process of instant claims and the disclosure of Howland et al; both descriptions appear to recite a reaction that proceeds to completion or near completion and forms the same products.

Kazuyoshi Asakura et al, used in the obviousness rejections, also reacts stearic acid and diethylenetriamine at temperature of 180-190 °C, removes water from the system (dehydrates), and can have a ratio of tertiary amine to total amine up to 0.66 (as discussed in the rejection below). Reacting until no further evolution of water occurs, or approximately to completion, would have been obvious to one of ordinary skill in the art to avoid wasting or having to separate unreacted components from the product. Kazuyoshi Asakura et al also appears to produce the same product as that recited in the instant claims (p 17/28, par 17, Examples).

Applicant argues on p 8 that a two step process is necessary because, in a conventional process, when the acid value becomes less than 10% of the initial theoretical value, the rate of reaction becomes small. Applicant also argues that, in the conventional method, the reaction is then stopped and the product has a ratio of tertiary amine to total amine of 0 to 0.4. Applicant further argues that the second reaction of the instant invention is required to raise the ratio to the claimed values.

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness.").

Applicant argues on p 8 that the ratio of carboxylic acid to polyamine is important. As detailed in the rejections below, Howland et al discloses embodiments where the

ratio of carboxylic acid to polyamine is within the claimed range (3:1 to 4:1), and and Kazuyoshi Asakura et al discloses a ratio of 1.5 to 3.3.

The rejections are maintained and have been updated to reflect the amended subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Howland et al (WO 01/59213 A1).

Howland et al discloses a papermaking additive composition and a method for making paper using the additive (p 1, par 1). The composition comprises an amide compound obtained by reacting one or more fatty acids and one or more polyamine of the formula

$H_2N\text{-}(R_1NH)_n\text{-}H$

wherein R_1 is C_2-C_4 alkylene and n is 2, 3, 4 or 5 (Abstract). Howland et al also discloses that the above reaction is conducted at a temperature from about 300 °F to about 350 °F (149°C to 177°C) until water evolution ceases (i.e. – about to completion) (p5, last par). Several examples of preferred polyamines and fatty acids are given (p7, 4th and 5th full pars) that are also recited in the instant specification (p 8 and Table 1, pp 25-26). The preferred polyamines include diethylenetriamine, triethylenetetramine and tetraethylenepentamine, which are used in the Examples listed in Table 1 on p 25 of the instant Specification. The preferred fatty acids include behenic, stearic, myristic and oleic acid, which are in the examples listed on p 8, last paragraph of the instant Specification as suitable acids. Oleic acid is an unsaturated acid, thus the product can contain unsaturated groups. Howland et al further discloses the preferred product has the formula

$$R_3NH\text{-}(R_1NR_4)_n\text{-}R_5$$

wherein n and R_1 are as above, R_3, R_4 and R_5 are each either H or $R_2C(O)$- (where at least one of R_3, R_4 and R_5 is $R_2C(O)$- and at least one is H), and R_2 is the hydrocarbon sidechain of a saturated or unsaturated fatty acid and contains 13-22 carbon atoms (p7, 1st and 3rd full pars). Where n is 2, R_3 is H and R_4 and R_5 are $R_2C(O)$-, then the ratio of tertiary amine to total amine is 0.67 and the ratio of acid reactant to polyamine is 3:1; if n is 3, the ratio becomes 0.75 and the ratio of acid reactant to polyamine is 4:1. The ratios lie within and thus anticipate the claimed ranges.

Howland et al does not disclose that the reaction proceeds in two steps. However, there is no apparent difference between the temperature and pressure

conditions of the first and second steps as claimed in the instant invention, thus the two steps are indistinguishable from two parts of one continuous reaction. The reaction of Howland et al can be said to proceed or, at least, it would have been obvious to one of ordinary skill in the art that the reaction proceeds to approximately 90% completion and then the products are reacted further at the same temperature until water evolution ceases.

Howland et al discloses that the additive dispersion is added to the to the pulp slurry (p3, 2nd full par) in an amount of 0.1 to 10 lb/ton (or 0.005 to 0.5 pts per 100 pts pulp) (p 8, 2nd full par). The disclosed concentration of additive dispersion to pulp slurry overlaps and thus anticipates the claimed range. Howland also discloses that the additives are used with one or more retention and drainage aids or flocculants, which include acrylamide copolymers (p9, 1st and last full pars and the par bridging pp 8 and 9). The listed examples include copolymers of acrylamide with dimethylaminoethyl (meth)acrylate, diallyldimethylammonium chloride, and acrylic acid, which are listed in the instant Specification (p 16, last par) as suitable acrylamide copolymers.

The composition disclosed by Howland et al, when added to the suspension, is capable of functioning as a softening agent because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claims 14-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vinson et al (6162329) in view of Dwiggins et al (6033523) and further in view of Kazuyoshi Asakura et al (JP 2002-275786 A, translation enclosed).

Vinson et al discloses a softening agent for tissue comprising quaternary compounds of the formula

$(R_1)_{4-m}$-N^+-$(R_2)_m X^-$

wherein m is 1-3; R1 is a C_1-C_6 alkyl group, hydroxyalkyl group, hydrocarbyl group, alkoxylated group or benzyl group; R2 is a C_{14}-C_{22} alkyl group, hydroxyalkyl group, hydrocarbyl group, alkoxylated group or benzyl group; and X is an anion (Abstract; col 10, lines 58-67 and col 11, lines 1-4).

Preferred variants of the quaternary compound have the formula

$(R_1)_{4-m}$-N^+-$(CH_2$-Y-$R_3)_m X^-$

wherein Y can be –O– (O)C– or –C(O) –O–; R1 is a C_{13}-C_{21} alkyl group, hydroxyalkyl group, hydrocarbyl group, alkoxylated group or benzyl group; R1 is a C_1-C_6 alkyl group, hydroxyalkyl group, hydrocarbyl group, alkoxylated group or benzyl group; and X is an anion (col 11, lines 36-54).

The various combinations encompass the claimed formulae (2) and (3).

Vinson et al also discloses that wet strength agents such as polyacrylamides can be used in the papermaking process (col 9, lines 35-36).

Vinson et al discloses a method wherein the softening composition is added to a partially dried web in an amount from 0.1 to 10% of the total weight of the product (col 4, lines 36-39 and 56-58).

Vinson et al discloses that the tissues can be made using recycled paper (col 8, lines 59-63).

Vinson et al does not disclose adding the softening composition to the furnish. Vinson et al also does not disclose the amount of polyacrylamide used. Vinson et al further does not disclose the use of the claimed amide compound.

Dwiggins et al discloses a soft, bulky tissue comprising at least about 3 lb/ton (0.15 pts/100 pts tissue) of a temporary wet strength agent and from 1 to 10 lb/ton (0.05 to 0.5 pts/100 pts tissue) of a nitrogen containing softener (col 4, lines 22-32; col 10, lines 25-33). The temporary wet strength agent includes acrylamides (col 7, lines 36-44). Dwiggins et al discloses that one or more softeners are used in the papermaking process, including amine amides and trivalent and tetravalent cationic organic nitrogen compounds incorporating long fatty acid chains, such as quaternary ammonium salts (col 9, lines 59-67). Dwiggins et al also teaches that commercially available softeners generally used are complex mixtures rather than a single agent (col 10, lines 12-16), thus the use of multiple additives is well known. Dwiggins et al further discloses that softeners can be added to the furnish or to the completely dried sheet (col 10, lines 17-24). The tissues can be made using recycled paper (col 6, lines 60-63). The ratio of

softener (which can be an amine amide compound) to acrylamides can be from 10:3 to 1:3, which significantly overlaps the claimed range.

Dwiggins et al does not disclose the claimed amine amide compounds.

Kazuyoshi Asakura et al discloses an additive for making paper using recycled paper that improves the bulkiness and oil absorption of the paper (p 4/28, Subject of the Invention). The paper can be a cleansing paper (tissue) that absorbs oil from a human body (par bridging pp 8/28 to 9/28). The additive is an amide compound made from the reaction of fatty acids having from 10 to 24 carbon atoms and a polyamine compound of the formula

$R^3HN-(R^2NH)_n-R^2NHR^4$

wherein R^2 is a C_1-C_4 alkylene group, R^3 and R^4 are H or C_1 to C_3 alkyl and n is 1-3. The ratio of reacted fatty acid to polyamine is from 1.5 to 3.3 (p 5/28, Claim 1). The product of the reaction can have a tertiary amine to total amine ratio of greater than 0.6 (for instance, if n=1, and the middle amine and two hydrogen atoms on one end amine are substituted with acyl groups, the ratio of tertiary amine to total amine is 0.66). The fatty acids are 20 to 100% unsaturated (p 5/28, Claim 2).

Kazuyoshi Asakura et al discloses a method of making paper wherein the additive is added to the pulp in an amount from 0.03 to 8% by weight (0.03 to 8 pts/100 pts pulp) (p 6/28, Claim 3). Acrylamides can also be added as dispersants in an amount from 0.05 to 20 wt % (0.05 to 20 pts/100 pts pulp) (par bridging pp 15/28 to

16/28). The ratio of amide compound to polyacrylamide ranges from 1/667 to 160/1 which significantly overlaps the claimed range.

Kazuyoshi Asakura et al does not disclose that the reaction proceeds in two steps, or the extent of reaction. Kazuyoshi Asakura et al does disclose that the reaction proceeds for several hours and the water formed is removed (p 13/28, par 11). Reacting until no further evolution of water occurs, or approximately to completion, would have been obvious to one of ordinary skill in the art to avoid wasting or having to separate unreacted components from the product. For reasons given above, the reaction of Kazuyoshi Asakura et al thus appears to be indistinguishable from the two steps claimed in the instant invention.

The art of Vinson et al, Dwiggins et al, Kazuyoshi Asakura et al and the instant application are analogous as they pertain to softening and bulking compositions for paper products. Vinson et al discloses the claimed quaternary softening agents and a polyacrylamide. Dwiggins et al teaches that softening compositions for tissues commonly include multiple softening/bulking agents and that such agents include quaternary amines and amine amides. Kazuyoshi Asakura et al teaches that the claimed amine amide compound enhances bulk (is a bulking agent) and oil absorbency from human skin. All three references disclose adding acrylamide for either wet strength or as a dispersant.

It would have been obvious to a person of ordinary skill in the art to use multiple softening/bulking agents in the tissue of Vinson et al in view of Dwiggins et al as a common practice. It would also have been obvious to use quaternary amine

compounds the claimed amine amide compounds in the tissue of Vinson et al in view of Dwiggins et al and further in view of Kazuyoshi Asakura et al to enhance the bulkiness and oil absorption properties of the tissue. Vinson et al discloses adding the softener to a partially dried web while Dwiggins et al discloses addition of the softeners to the furnish or to the dried web. It would have been obvious to one of ordinary skill in the art to add the softening composition to the furnish as a functionally equivalent option. Vinson et al discloses addition of the quaternary compound in amounts of 0.1 to 10 parts/100 parts tissue product. Kazuyoshi Asakura et al discloses addition of the amide compound in amounts of 0.03 to 8 pts/100 pts pulp. Assuming the tissue product weight to be similar to the pulp weight (on a dry basis), the ratio of amide compound to quaternary compound can range from 1/333 to 80/1. Dwiggins and Kazuyoshi Asakura et al disclose addition of polyacrylamide in amounts from 0.05 to 20 pts/100 pts pulp. The ratio of amide compound to polyacrylamide ranges from 1/667 to 160/1. The instant Claims recite broad ranges for the ratios of amine amide to either quaternary ammonium compound or polyacrylamide and obtaining the claimed ratios would be a matter of optimization within the purview of one of ordinary skill in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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